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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,910	12/19/2001	Shigeo Nakagaki	217656US-3TTC CONT	9815
22850	7590	12/22/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER PICO, ERIC E	
			ART UNIT 3654	PAPER NUMBER
			NOTIFICATION DATE 12/22/2008	DELIVERY MODE ELECTRONIC

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1 UNITED STATES PATENT AND TRADEMARK OFFICE

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4 BEFORE THE BOARD OF PATENT APPEALS
5 AND INTERFERENCES
6

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8 *Ex parte* SHIGEO NAKAGAKI, and YASUYUKI WAGATSUMA
9

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11 Appeal 2008-1286
12 Application 10/020,910
13 Technology Center 3600
14

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16 Decided: December 18, 2008
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19 *Before:* WILLIAM F. PATE, III, JENNIFER D. BAHR, and
20 FRED A. SILVERBERG, *Administrative Patent Judges.*

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22 SILVERBERG, *Administrative Patent Judge.*
23

24
25
26 DECISION ON APPEAL
27

28 STATEMENT OF THE CASE

29 Appellants appeal under 35 U.S.C. § 134 (2002) from a Final Office
30 Action of claims 1-3 and 26. We have jurisdiction under 35 U.S.C. § 6(b)
31 (2002).
32

1 SUMMARY OF DECISION

2 We AFFIRM.

3 THE INVENTION

4 The Appellants' claimed invention is directed to an elevator with a
5 drive unit mounted on a guide rail. Claim 1, reproduced below, is
6 representative of the subject matter on appeal.

- 7 1. An elevator comprising:
8 a movable unit configured to ascend and descend
9 in an elevator shaft;
10 a guide rail configured to guide said movable unit;
11 a cable configured to hang said movable unit;
12 a driving unit mounted on said guide rail and
13 configured to move said movable unit up and down by
14 driving said cable;
15 a plurality of rail support members connected to
16 said guide rail; and
17 a plurality of plates attached to a respective rail
18 support member of said plurality of rail support
19 members,
20 wherein at least one plate of said plurality of plates
21 is fixed to a wall of said elevator shaft by at least two
22 vertically spaced lines of securing members separated
23 from each other by an interval in a vertical direction, and
24 wherein each line of securing members of said at
25 least one plate includes at least one securing member that
26 satisfies an inequality defined as:
27 $(Wh)/(2fn) \leq L \leq (Wh)/(fn)$,
28 where W is a load applied to one end of said rail
29 support members at which said guide rail is connected, h
30 is a distance between said wall and said guide rail, f is a
31 maximum permissible tensile strength of an uppermost of
32 said securing members, n is the number of securing
33 members per line of said securing members, and L is a
34 distance of said interval, and
35 wherein at least one rail support member of said
36 plurality of rail support members includes a U-shaped

1 member having substantially parallel leg members each
2 having a first end attached to said at least one plate and a
3 second end attached to a base member, said base member
4 being connected to said guide rail.
5

6 THE REJECTION

7 The Examiner relies upon the following as evidence of
8 unpatentability:

9 Ericson	US 4,848,519	Jul. 18, 1989
10 Aulanko	US 5,899,301	May 4, 1999

11
12 Appellants' Admitted Prior Art (AAPA) as disclosed in the Specification
13 (Spec. 2, ll. 9-19) and shown in Drawings (figs. 2a and 2b).
14

15 The following rejection is before us for review:

16 Claims 1-3 and 26 are rejected under 35 U.S.C. § 103(a) (2004) as
17 being unpatentable over Aulanko in view of AAPA and Ericson.
18

19 ISSUE

20 The issue before us is whether the Appellants have shown that the
21 Examiner erred in rejecting claims 1-3 and 26 over Aulanko in view of
22 AAPA and Ericson. The issue turns on whether the Examiner has failed to
23 articulate a reason with rational underpinning to combine the teachings of
24 Aulanko, AAPA and Ericson.
25

26 FINDINGS OF FACT

27 We find that the following enumerated findings are supported by at
28 least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d

1 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for
2 proceedings before the Office).

3 1. The Appellants' Specification discloses an elevator comprising a
4 movable unit (passenger cage) 101, a guide rail 110 configured to
5 guide the movable unit, a cable 103, a driving unit 8 mounted on
6 the guide rail and configured to move the movable unit up and
7 down by driving the cable, a plurality of rail support members 31
8 connected to the guide rail, and a plurality of plates 2 attached to a
9 respective rail support member of the plurality of rail support
10 members (Appellants' Spec. 8, ll. 4-17).

11 2. The Appellants' Specification further discloses that one of the
12 plates 2 is fixed to a wall 4 of the elevator shaft by at least two
13 vertically spaced lines of securing members 3 (Appellants' Spec. 8,
14 ll. 18-20).

15 3. The Appellants' Specification still further discloses that at least
16 one rail support member 31 includes a U-shaped member 1 having
17 substantially parallel leg members, wherein a first end is attached
18 to the plate 2 and a second end is attached to a base member, with
19 the base member being connected to the guide rail 110
20 (Appellants' Spec. 8, ll. 7-9, 21 and 22, and Appellants' fig. 3(b)).

21 4. The Appellants' Specification still further discloses that the
22 securing members comprise upper and lower pairs 3B, 3A of
23 anchor bolts, with each pair of the anchor bolts being separated by
24 an interval in the horizontal direction (Appellants' Spec. 8, ll. 18-
25 19).

1 5. Aulanko discloses an elevator comprising a movable unit
2 (passenger cage) 54, a guide rail 6 configured to guide the movable
3 unit, a cable 5, a driving unit 1 mounted on the guide rail and
4 configured to move the movable unit up and down by driving the
5 cable (Aulanko fig. 4).

6 6. AAPA discloses a guide rail 110 secured to a side wall 4 by U-
7 shaped brackets 1 and plates 2D, the plates being fixed to the wall
8 4 by bolts 3, wherein the bolts 3 are spaced apart in the horizontal
9 direction (Appellants' Spec. 2, ll. 9-19 and Appellants' figs. 2a,
10 2b).

11 7. Ericson discloses an elevator guide rail 125 secured to a wall 20 by
12 a fixture 265 bolted to the wall by bolts (col. 5, ll. 29-35), wherein
13 the bolts are spaced apart in both the horizontal and vertical
14 direction (Ericson fig. 1).

15 8. Ericson further discloses that the guide rails provide lateral
16 stability to the movable unit 30 (Ericson col. 4, ll. 3-4).

17
18

PRINCIPLES OF LAW

19 Appellant has the burden on appeal to the Board to demonstrate error
20 in the Examiner's position. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir.
21 2006) ("On appeal to the Board, an applicant can overcome a rejection
22 [under § 103] by showing insufficient evidence of *prima facie* obviousness
23 or by rebutting the *prima facie* case with evidence of secondary indicia of
24 nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir.
25 1998)).

1 “Section 103 forbids issuance of a patent when ‘the differences
2 between the subject matter sought to be patented and the prior art are such
3 that the subject matter as a whole would have been obvious at the time the
4 invention was made to a person having ordinary skill in the art to which said
5 subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727,
6 1734 (2007). The question of obviousness is resolved on the basis of
7 underlying factual determinations including (1) the scope and content of the
8 prior art, (2) any differences between the claimed subject matter and the
9 prior art, (3) the level of skill in the art, and (4) where in evidence, so-called
10 secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18
11 (1966). *See also KSR*, 127 S. Ct. at 1734 (“While the sequence of these
12 questions might be reordered in any particular case, the [*Graham*] factors
13 continue to define the inquiry that controls.”)

14 In *KSR*, the Supreme Court emphasized “the need for caution in
15 granting a patent based on the combination of elements found in the prior
16 art,” *id.* at 1739, and discussed circumstances in which a patent might be
17 determined to be obvious. In particular, the Supreme Court emphasized that
18 “the principles laid down in *Graham* reaffirmed the ‘functional approach’ of
19 *Hotchkiss*, 11 How. 248.” *KSR*, 127 S. Ct. at 1739 (citing *Graham*, 383 U.S.
20 at 12), and reaffirmed principles based on its precedent that “[t]he
21 combination of familiar elements according to known methods is likely to be
22 obvious when it does no more than yield predictable results.” *Id.* The Court
23 explained:

24 When a work is available in one field of endeavor,
25 design incentives and other market forces can
26 prompt variations of it, either in the same field or a
27 different one. If a person of ordinary skill can

1 implement a predictable variation, § 103 likely
2 bars its patentability. For the same reason, if a
3 technique has been used to improve one device,
4 and a person of ordinary skill in the art would
5 recognize that it would improve similar devices in
6 the same way, using the technique is obvious
7 unless its actual application is beyond his or her
8 skill.

9 *Id.* at 1740. The operative question in this “functional approach” is thus
10 “whether the improvement is more than the predictable use of prior art
11 elements according to their established functions.” *Id.*

12 The Supreme Court stated that there are “[t]hree cases decided after
13 *Graham* [that] illustrate the application of this doctrine.” *Id.* at 1739. “In
14 *United States v. Adams*, ... [t]he Court recognized that when a patent claims
15 a structure already known in the prior art that is altered by the mere
16 substitution of one element for another known in the field, the combination
17 must do more than yield a predictable result.” *Id.* at 1739-40. “*Sakraida*
18 *and Anderson’s-Black Rock* are illustrative – a court must ask whether the
19 improvement is more than the predictable use of prior art elements according
20 to their established function.” *Id.* at 1740.

21 The Supreme Court stated that “[f]ollowing these principles may be
22 more difficult in other cases than it is here because the claimed subject
23 matter may involve more than the simple substitution of one known element
24 for another or the mere application of a known technique to a piece of prior
25 art ready for the improvement.” *Id.* The Court explained:

26 Often, it will be necessary for a court to look to
27 interrelated teachings of multiple patents; the
28 effects of demands known to the design
29 community or present in the marketplace; and the
30 background knowledge possessed by a person

1 having ordinary skill in the art, all in order to
2 determine whether there was an apparent reason to
3 combine the known elements in the fashion
4 claimed by the patent at issue.

5 *Id.* at 1740-41. The Court noted that “[t]o facilitate review, this analysis
6 should be made explicit.” *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (Fed.
7 Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by
8 mere conclusory statements; instead, there must be some articulated
9 reasoning with some rational underpinning to support the legal conclusion of
10 obviousness”)). However, “the analysis need not seek out precise teachings
11 directed to the specific subject matter of the challenged claim, for a court
12 can take account of the inferences and creative steps that a person of
13 ordinary skill in the art would employ.” *Id.*

14 The Federal Circuit recently concluded that it would have been
15 obvious to combine (1) a mechanical device for actuating a phonograph to
16 play back sounds associated with a letter in a word on a puzzle piece with
17 (2) an electronic, processor-driven device capable of playing the sound
18 associated with a first letter of a word in a book. *Leapfrog Ent., Inc. v.*
19 *Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) (“[a]ccommodating
20 a prior art mechanical device that accomplishes [a desired] goal to modern
21 electronics would have been reasonably obvious to one of ordinary skill in
22 designing children’s learning devices”). In reaching that conclusion, the
23 Federal Circuit recognized that “[a]n obviousness determination is not the
24 result of a rigid formula disassociated from the consideration of the facts of a
25 case. Indeed, the common sense of those skilled in the art demonstrates why
26 some combinations would have been obvious where others would not.” *Id.*
27 at 1161 (citing *KSR*, 127 S.Ct. 1727, 1739 (“The combination of familiar

1 elements according to known methods is likely to be obvious when it does
2 no more than yield predictable results.”)). The Federal Circuit relied in part
3 on the fact that Leapfrog had presented no evidence that the inclusion of a
4 reader in the combined device was “uniquely challenging or difficult for one
5 of ordinary skill in the art” or “represented an unobvious step over the prior
6 art.” *Id.* (citing *KSR*, 127 S.Ct. at 1740-41).

7 Discovery of an optimum value of a result effective variable in a
8 known process is ordinarily within the skill of the art. *In re Boesch*, 617
9 F.2d 272, 276 (CCPA 1980).

10 ANALYSIS

11
12 Appellants argue claims 1-3 and 26 as a group. As such, we select
13 claim 1 as representative of the group, and claims 2, 3 and 26 will stand or
14 fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

15 Aulanko discloses an elevator comprising a movable unit (passenger
16 cage) 54, a guide rail 6 configured to guide the movable unit, a cable 5, a
17 driving unit 1 mounted on the guide rail and configured to move the
18 movable unit up and down by driving the cable (Fact 5). Aulanko does not
19 specifically disclose how the guide rail is attached to the elevator shaft.
20 AAPA discloses a guide rail 110 secured to a side wall 4 by U-shaped
21 brackets 1 and plates 2D, the plates are fixed to the wall 4 by bolts 3,
22 wherein the bolts 3 are spaced apart in the horizontal direction (Fact 6).
23 Ericson discloses elevator guide rails 125 secured to a wall 20 by a fixture
24 265 bolted to the walls by bolts, wherein the bolts are spaced apart in both
25 the horizontal and vertical directions (Fact 7), such that the guide rails
26 provide lateral stability to the movable unit 30 (Fact 8). We conclude that to

1 combine the teachings of Aulanko, AAPA and Ericson as set forth by the
2 Examiner (Ans. 3-5) would have been obvious at the time the invention was
3 made to a person having ordinary skill in the art.

4 Appellants argue that there is no motivation to combine the teachings
5 of Aulanko, AAPA and Ericson (Br. 6). However, in *KSR* the Supreme
6 Court held that a rigid application of such a mandatory formula as TSM
7 [teaching, suggestion or motivation] was incompatible with its precedent
8 concerning obviousness. *See KSR* at 1741.

9 Appellants argue that an elevator system in which a drive unit for an
10 elevator is mounted to a structure other than a guide rail would provide
11 drastically different force and weight issues (Br. 6). It is well known to a
12 person having ordinary skill in the art that in constructing a joint for an
13 elevator support; design engineers would analyze the load the joint might be
14 expected to experience. In the analysis, the design engineers would
15 calculate the force and weight issues involved, including the tensile strength
16 of the elements. Thereafter, based upon the calculated tensile strength
17 needed; the design engineers would choose the particular beams, and the
18 number and types of fasteners. Further, we agree with the Examiner's
19 analysis (Ans. 7) that it is well known that using more fasteners would
20 strengthen a joint. Thus, barring any unexpected results, the number of
21 fasteners needed or used to connect two elements of the joint is deemed to
22 be a matter of design choice. In *KSR* the Supreme Court held that "[t]he
23 combination of familiar elements according to known methods is likely to be
24 obvious when it does no more than yield predictable results." *See KSR* at
25 1739.

1 Further, we agree with the Examiner's analysis (Ans. 5) regarding the
2 particular vertical positioning of the bolts based upon, *inter alia*, force and
3 weight parameters as called for in claim 1, lines 13-19, as we find that
4 discovering the optimum range for the vertical positioning of the bolts
5 involves routine skill in the art. Discovery of an optimum value of a result
6 effective variable in a known process is ordinarily within the skill of the art.
7 *In re Boesch*, 617 F.2d 272, 276 (CCPA 1980).

8 Appellants still further argue that in an elevator unit where the drive
9 unit is mounted directly to the guide rail, space is needed to install the drive
10 unit between the guide rail and the wall (Br. 7). Appellants state that the
11 distance "h" (the space) (fig. 3(a)) for their invention where the drive unit is
12 mounted to the guide rail is larger than in a configuration in which the drive
13 unit is not mounted to the guide rail (Br. 7). A comparison between
14 Appellants' invention shown in Appellants' fig. 3(a), wherein the drive unit
15 is mounted to the guide rail, and the AAPA shown in Appellants' fig. 2(a),
16 wherein the drive unit is not mounted to the guide rail, reveals that the
17 distance "h" appears to be the same. While we do agree that when an
18 element is inserted between two members some space is needed to
19 accommodate the element, in this instance in view of the teaching of AAPA,
20 it does not appear that any additional space is needed.

21 Appellants still further argue that one of ordinary skill in the art would
22 not have looked to Ericson for the teaching of a mounting system capable of
23 mounting and supporting a guide rail upon which a drive unit is mounted as
24 the addition of the second row of bolts in fixture 265 in Ericson is the result
25 of the size of the fixture rather than the result of a need to increase the
26 vertical support of the guide rail (Br. 9). Claim 1 does not call for a

1 particular size or restrict the size of the plate. A further comparison between
2 Appellants' invention shown in fig. 3(a) and the AAPA shown in fig. 2(a)
3 reveals that the bolts 3 in the AAPA are at approximately the same vertical
4 position on the plate as the top bolt 3B in Appellants' invention. As such,
5 there is room below the bolts 3 for a second set of bolts. Ericson teaches
6 using four (4) bolts between a plate and a wall to secure an elevator guide
7 rail. A person having ordinary skill in the art at the time the invention was
8 made in view of the combined teachings of Aulanko, AAPA and Ericson
9 would provide a second set of bolts below the first set of bolts 3 in the
10 AAPA in a spaced vertical and horizontal manner as taught by Ericson at
11 265. In *KSR* the Supreme Court held that "[t]he combination of familiar
12 elements according to known methods is likely to be obvious when it does
13 no more than yield predictable results." *See KSR* at 1739.

14 15 CONCLUSION OF LAW

16 We conclude that the Appellants have not shown that the Examiner
17 erred in rejecting claims 1-3 and 26 under 35 U.S.C. § 103(a) as being
18 unpatentable over Aulanko in view of AAPA and Ericson.

19 20 DECISION

21 The decision of the Examiner to reject claims 1-3 and 26, and 4 over
22 Aulanko in view of AAPA and Ericson is affirmed.

23 No time period for taking any subsequent action in connection with
24 this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2007).

25
26 AFFIRMED

Appeal 2008-1286
Application 10/020,910

1

2 PL: vsh

3

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